



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,766	03/07/2002	Arun Kwangil Iyengar	YOR920010661US1	8735
7590 08/25/2004			EXAMINER	
Ryan, Mason & Lewis, LLP			PEIKARI, BEHZAD	
90 Forest Avenue			ART UNIT	
Locust Valley, NY 11560			PAPER NUMBER	
			2186	
DATE MAILED: 08/25/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,766

Applicant(s)

IYENGAR ET AL.

Examiner

B. James Peikari

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/14/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 14-20, 26 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 12, 21-23, 25 and 27 is/are rejected.
- 7) ☒ Claim(s) 7, 11, 13 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

On page 1, line 11, "in" should replace "as". This is a critical difference since a "cache" is very different from a "cache server". As one of ordinary skill in the art would recognize, a cache is merely a memory. For example, in a solid state implementation, a cache is an array comprising rows and columns of memory cells.

A cache server, on the other hand, is a server which has a resident cache memory or which has quick access to a cache memory. The purpose of a cache server is to provide the I/O circuitry necessary to support and hopefully speed up data transfers across a network.

Furthermore, throughout the specification applicant has used the term "cache" to refer to both an art-accepted "cache" and a "cache server" interchangeably. Note, e.g., page 3, lines 2-3, which state, "The central cache may coordinate updates to the local caches", whereas one of ordinary skill in the art would recognize that it is impossible for an array of memory cells to coordinate such transactions on a network.

Appropriate correction is required throughout the specification.

Claim Rejections - 35 USC § 112

2. The previous rejections of claims 7, 11 and 24 under 35 U.S.C. 112, second paragraph, is withdrawn due to applicant's remarks filed on June 14, 2004. As for claim 7, the meaning and scope of the term "cost" is limited to only those embodiments within the scope of the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 8-10, 12, 21-23, 25 and 27 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Gannon et al., U.S. 5,265,232.

Upon careful inspection, it appears that the claims are so broad that they would have been taught by any prior art multiprocessor system having local L1 caches and a shared L2 cache wherein some means of coherency (e.g., snooping, broadcasting, cross-interrogating, etc.) is achieved using a directory. A multitude of such systems were known at the time of the invention. The examiner cannot see any difference between these systems and the claimed invention.

Gannon et al. is cited as an example of just such a system. Gannon et al. teach storing objects in a central cache (*L2 cache*), replicating a data object in at least one connected local cache (*L1 cache*), maintaining in accordance with the central cache a directory describing the content of the local caches (*XI directory*), in response to a change to cached data, coordinating a corresponding update in the local cache (*i.e., "coherence" explained throughout Gannon et al.*).

As for requesting an object from the central cache or a remote server, *i.e., a lower level of memory hierarchy when the object has not been found at a higher level*, this was how *all* hierarchical memory systems worked, including the Gannon et al. system (*note column 4, lines 43-47*).

As for the use of a cache replacement policy, note the use of an LRU scheme, wherein the "recently used" status is a measurable (*i.e., "metric"*) quantity relative to all other cached objects and is correlated with a frequency (of access).

Response to Amendment

5. With regard to the remarks filed with the amendment of June 14, 2004, these have been carefully considered but are not deemed convincing for at least the following reasons.

Applicant's remarks hinge on the assertion that "the central cache, itself, intelligently coordinates the updating of local caches" (note page 9 of the remarks filed with the amendment of June 14, 2004). However, such an interpretation is based on a

Art Unit: 2186

narrow interpretation of the claim language, e.g., applicant appears to interpret the following language of claim 1:

“in response to a change to cached data, the central cache updating at least a portion of content stored thereon and coordinating an update of at least a portion of content replicated on the at least one local cache”

to mean:

“in response to a change to cached data, the central cache updating at least a portion of content stored thereon and *the central cache further* coordinating an update of at least a portion of content replicated on the at least one local cache”

however, there is nothing in the structure of the sentence that requires the phrase “coordinating an update” to modify the noun “central cache”. In other words, there is nothing in the claim that specifies what element of the system is performing the “coordinating”, in contrast to applicant’s interpretation.

Even if applicant were to modify the claim to include the language “the central cache further”, or something similar, to correspond in scope with applicant’s remarks and to overcome the present rejection, the question of enablement would arise for at least the reasons noted in section 1 of this Office action.

Allowable Subject Matter

6. Claims 7, 11, 13 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if the formal matters regarding the specification were overcome.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Peikari whose telephone number is (703) 305-3824. The examiner is generally available between 8:00 am and 9:30 pm, EST, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim, can be reached at (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Art Unit: 2186

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 746-7239 (Official communications)

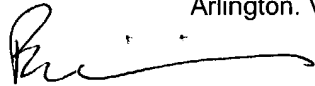
or:

(703) 746-7240 (for Informal or Draft communications)

or:

(703) 746-7238 (for After-Final communications)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).



B. James Peikari
Primary Examiner
Art Unit 2186

8/23/04